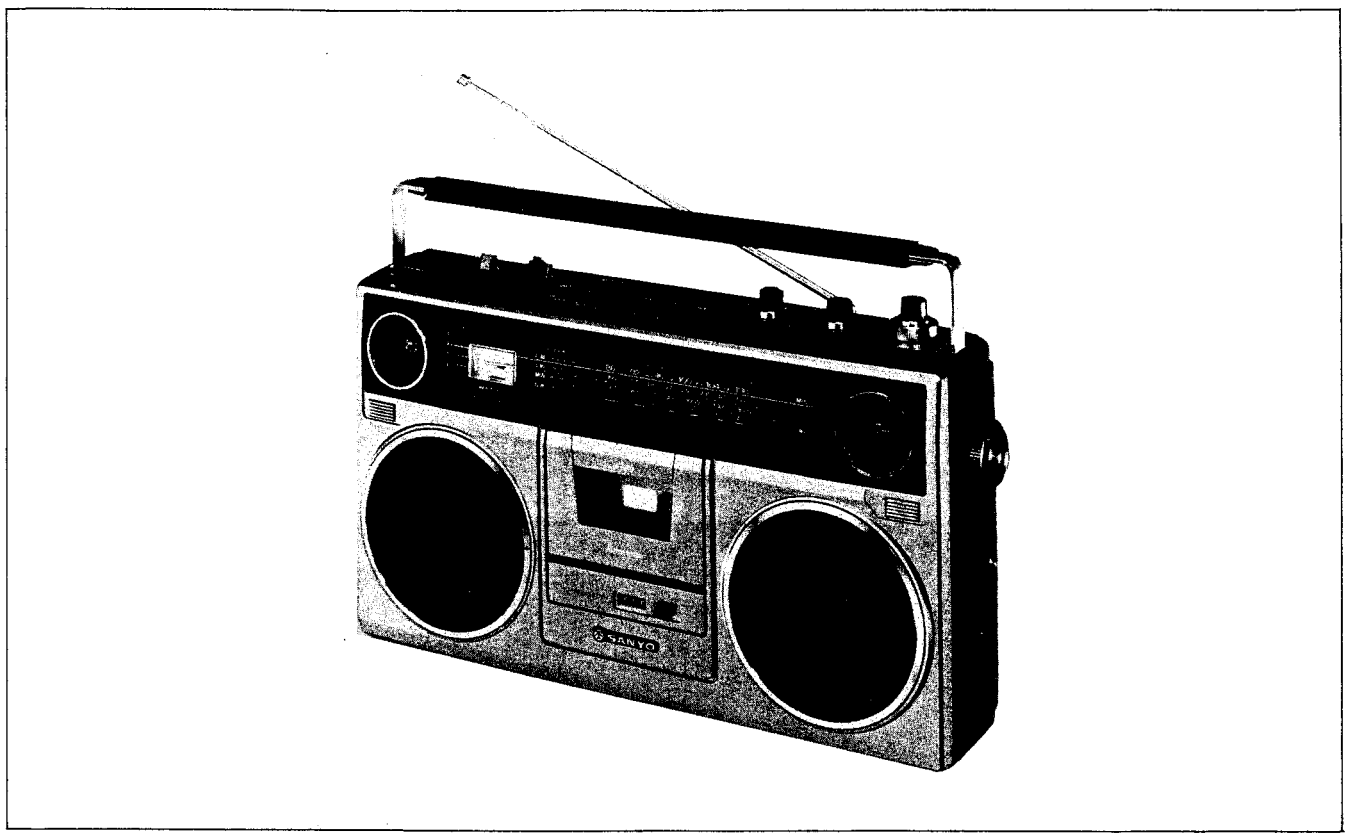
SERVICE MANUAL

SANYO

CASSETTE RECORDER

M9930LU

(EUROPE)



SPECIFICATIONS

Recording System	AC bias, 4 tracks stereo
Erasing system	DC erase
Tape speed	1-7/8 i.p.s. (4.75 cm/sec.)
Rewind and fast forward time	Rewind: 1 min. 40 sec. (C–60) Fast forward: 3 min. 40 sec. (C–60)
Signal to noise ratio	40 dB
Frequency range	FM: 87.5 – 108MHz LW: 150 – 350kHz MW: 510 – 1,650kHz SW: 5.95 – 18MHz
Terminal impedance	EXT. MIC: 6k ohms REC/PB: (input) 10k ohms (output) 1k ohms EXT. SP: 4 ohms HEADPHONE: 8 ohms
Output power	2.5 W x 2 (maximum)
Power source	DC: 9V "D" (UM–1) x 6 AC: 115/230V, 50Hz
Dimensions	18-1/6"(W) x 4-7/16"(D) x 10-7/16"(H) (458 x 111 x 265 mm)
Weight	Approx. 10 lbs. 6 ozs. (4.7 kg) including batteries

~~*Specifications subject to~~ change without notice.

ADJUSTMENT OF PINCH ROLLER

1. Set the unit to the PLAY mode.
2. Apply a tension gauge to the pinch roller. Read the gauge at the precise moment when the pinch roller separates from the capstan.
3. If the gauge reading is within a range of 450–650g, no adjustment is necessary. If otherwise, make adjustment by changing the force of the spring coil. (See exploded view No.15)

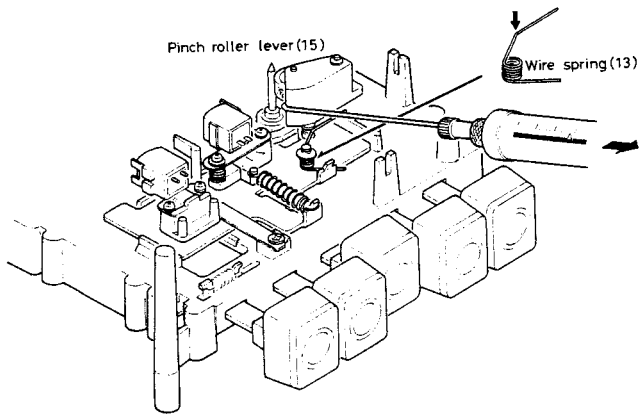


Fig.1

AUTO-STOP ADJUSTMENT

Measure the senser pressure with a tension gauge with the unit set in the playback mode. The unit should be shut off when the senser pressure stand within a range of 30 to 55 grams. (Fig. 3)
If the shut-off mechanism fails to function at a senser pressure of 30 to 55 grams, adjust the spring coil (Mechanism No. 60).

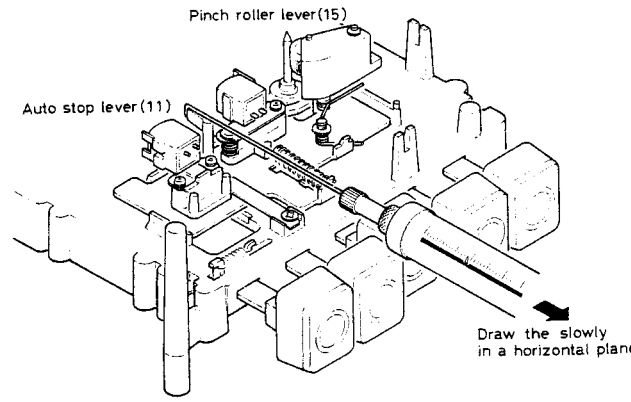


Fig.3

ADJUSTMENT OF HEAD AZIMUTH

1. Connect the unit to a power source and insert a test cassette tape (7K Hz pre-recorded) in the cassette compartment.
2. Connect an 4 ohm dummy load with the VTVM across it to the EXT. SP jack on the unit.
3. Set the unit into the PLAY mode
4. Turn the head azimuth adjusting screw until the maximum value with reading on the VTVM.
5. Fasten the adjusting screw securely by applying paint or glue.

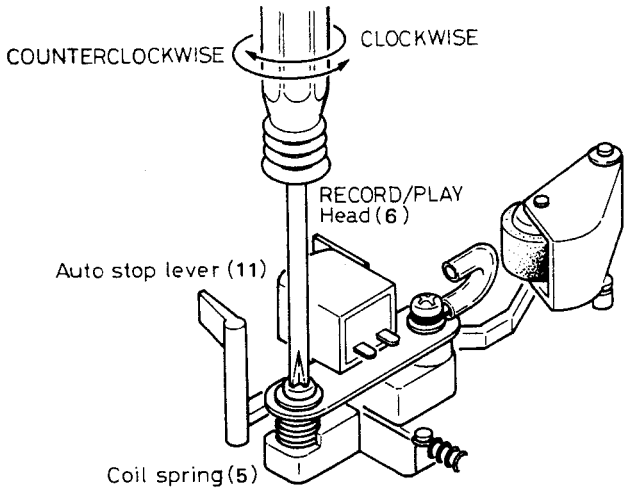


Fig.2

MECHANICAL ADJUSTMENT

To measure the torque of the tape recorder, a torque gauge (Fig. 4) and a tension gauge are necessary. To use a tension gauge, make a hole in the side of the Cassette as shown in Fig. 5.
Be careful that the tape does not rub against the edge of the Cassette; these will make correct measurement impossible.

1. Take-up torque (measure with torque gauge)

Play	30~65 gr/cm
Fast forward	60~110 gr/cm
Rewind	60~110 gr/cm

2. Back tension (measure with tension gauge)

Play	Less than 5 gr/cm
Fast forward	Less than 5 gr/cm
Rewind	Less than 5 gr/cm

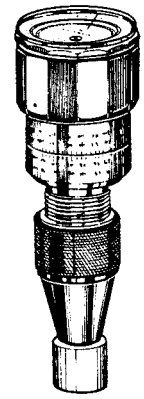


Fig.4

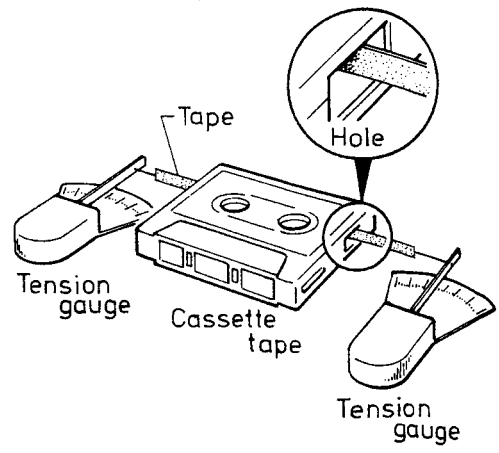
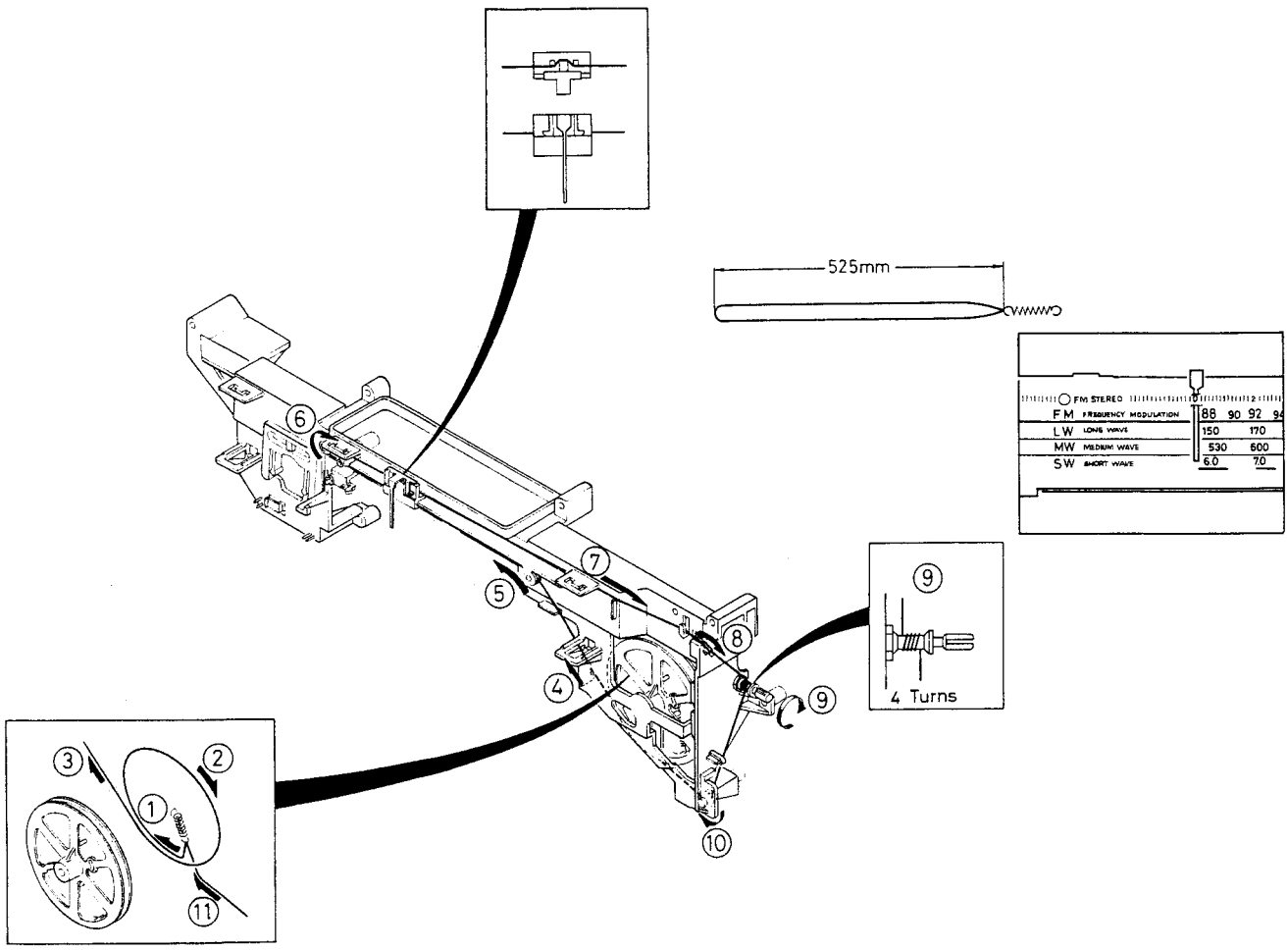
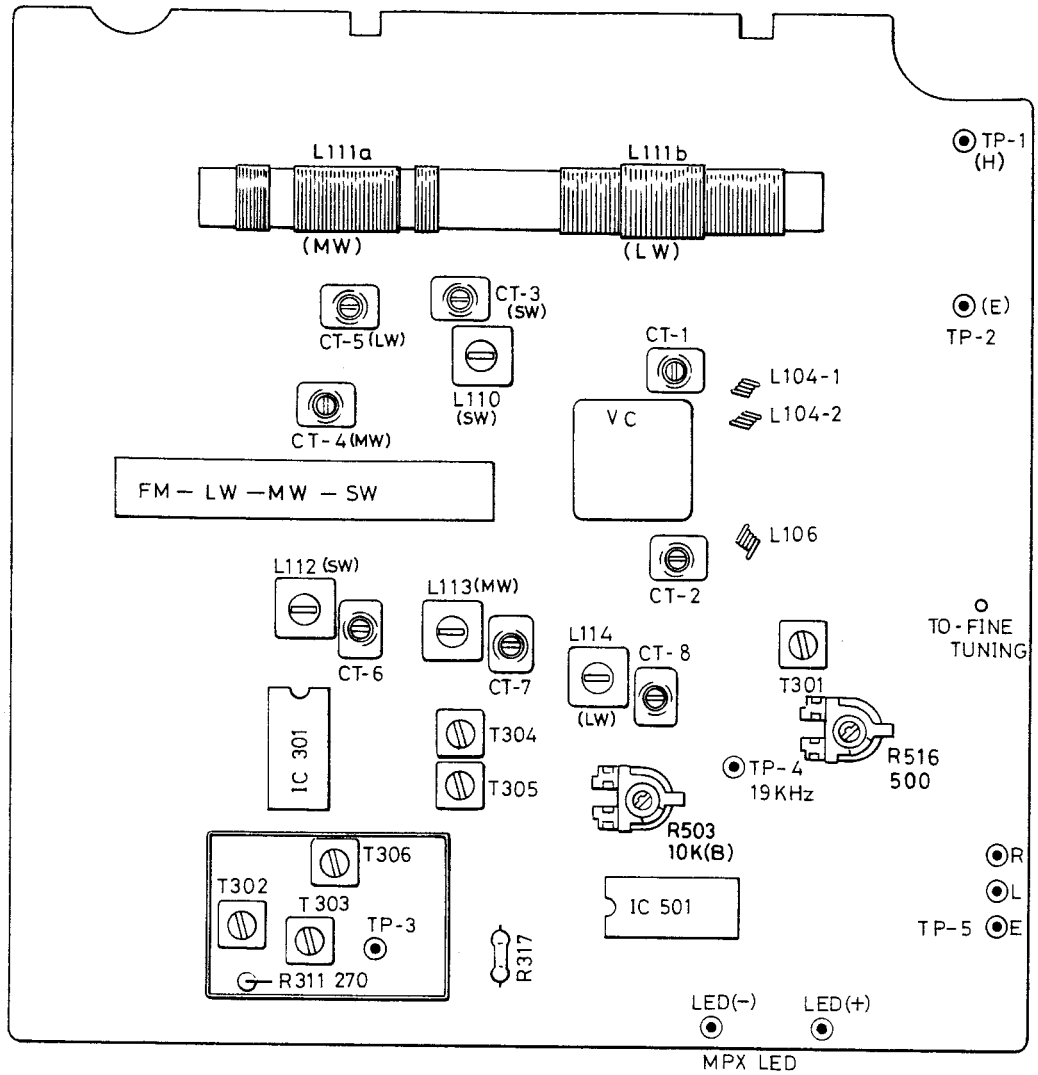


Fig.5


525mm
FM STEREO
FM FREQUENCY MODULATION
LW LONG WAVE
MW MEDIUM WAVE
SW SHORT WAVE
88 90 92
150 170
530 600
6.0 7.0
4 Turns



LW ADJUSTMENT

Step	Adjusting Circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	OSC.	Connect AM SG to Test Loop.	Connect VTVM to speaker terminals.	145 KHz (400 Hz 30% modulation)	Low end of dial scale	L114	MAX.
2				365 KHz (400 Hz 30% modulation)	High end of dial scale	CT8	
3	ANT.	Connect AM SG to Test Loop.	Connect VTVM to speaker terminals.	160 KHz (400 Hz 30% modulation)	160 KHz on dial scale	L111b	MAX.
4				340 KHz (400 Hz 30% modulation)	340 KHz on dial scale.	LT5	
5	Repeat adjustments.						

PREPARE: 1. Set the dial pointer to very left line of dial scale.
2. Connect sweep generator, AM SG, VTVM and oscilloscope.
3. Selector switch to "LW".
4. Use a screwdriver with plastic grip for all adjustments.

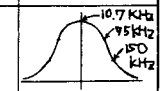
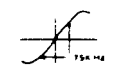
TUNER ADJUSTMENT

MW ADJUSTMENT

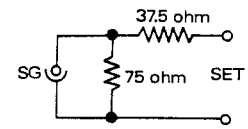
Step	Adjusting Circuit	Connection		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	I.F.T.	Connect sweep generator to Test Loop.	Connect oscillo-scope to EXT. SP terminals	460 KHz (400 Hz 30% modulation)	Low end of dial scale under no station signal.	T304,T305, T306	MAX.
2	OSC.	Connect AM SG to Test Loop.	Connect VTVM to speaker termainals.	505 KHz (400 Hz 30% modulation)	Low end of dial scale	L113	MAX.
3				1670 KHz (400 Hz 30% modulation)	High end of dial scale	CT7	
4	ANT.	Connect AM SG to Test Loop.	Connect VTVM to speaker terminals.	600 KHz (400 Hz 30% modulation)	600 KHz on dial scale	L111a	MAX.
5				1400 KHz (400 Hz 30% modulation)	1400 KHz on dial scale	CT4	
6	Repeat adjustments.						

PREPARE: 1. Set the dial pointer to very left line of dial scale.
2. Connect sweep generator, AM SG, VTVM and oscilloscope.
3. Selector switch to "MW"
4. Use a screwdriver with plastic grip for all adjustments.

FM ADJUSTMENT

Step	Adjusting Circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	I.F.	Connect sweep generator to FM TP1 (H) & TP2 (E)	Connect oscillo-scope to TP3 (H) & IF earth (E).	10.7 MHz (0% modulation)	Near max. capacity of VC. at position with unrequired signal.	T301,T302	
2	Ratio Det.		Connect oscillo-scope to R317 (H) & IF earth (E).			T303	
3	OSC.	Connect FM SG to TP-1 (H) & TP-2(E)	Connect VTVM to sepakers terminal.	87.25 MHz (400 Hz 30% modulation)	Low end of dial scale	L106	MAX.
4				109.0 MHz (400 Hz 30% modulation)	High end of dial scale	CT2	
5	ANT.	Connect FM SG to TP-1 (H) & TP-2(E)	Connect VTVM to speaker terminal.	90.0 MHz (400 Hz 30% modulation)	90.0 MHz on dial scale	L104-1 L104-2	MAX.
6				106.0 MHz (400 Hz 30% modulation)	106.0 MHz on dial scale	CT1	
7	Repeat adjustments.						

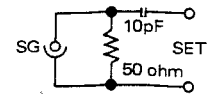
PREPARE: 1. Set the dial pointer to vrry left line of dial scale.
2. Connect sweep generator, FM SG, VTVM and oscilloscope. FM antenna input impedance is 75 ohm.
3. Use a screwdriver with plastic grip for all adjustments.



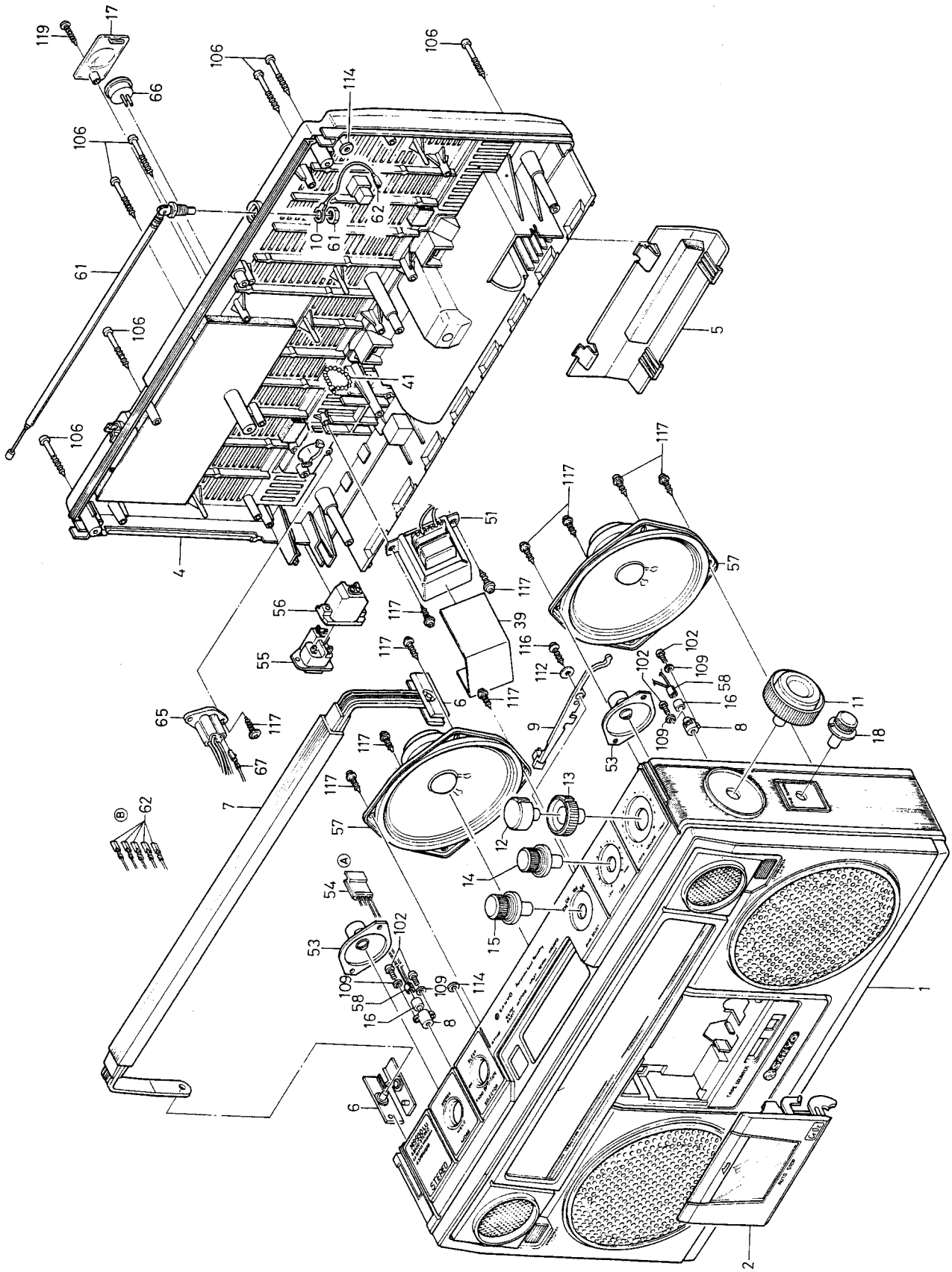
SW ADJUSTMENT

Step	Adjusting circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	O.S.C	Connect AM SG. to ANT terminal through IRE dummy.	Connect VTVM to EXT. SP. terminals.	5.8 MHz (400 Hz 30% modulation)	Low end of dial scale.	L112	MAX.
2				19.0 MHz (400 Hz 30% modulation)	High end of dial scale.	CT6	
3	ANT.	Connect AM SG. to ANT terminal through IRE dummy.	Connect VTVM to EXT. SP. terminals.	7.0 MHz (400 Hz 30% modulation)	7.0 MHz on dial scale.	L110	MAX.
4				18.0 MHz (400 Hz 30% modulation)	18.0 MHz on dial scale.	CT3	
5	Repeat adjustments.						

PREPARE: 1. Set the dial pointer to very left line dial scale.
2. Connect signal generator to dummy antenna.
3. Use screwdriver with plastic grip for all adjustments.
4. Selector switch to "SW".
5. Set the Fine Tuning to mechanical center.
6. Use a Dummy antenna as follow.



EXPLODED VIEW (CABINET)



PARTS LIST

Ref. No.	Part No.	Description	Q'ty
PACKING			
	141-6-132T-86007	Individual carton	1
	141-6-144T-45500	Foam plastic case, Right	1
	141-6-144T-45600	Foam plastic case, Left	1
	141-6-410T-06507	Instruction manual	1
	141-6-231T-40600	Inner polye cover, Set	1
	141-6-231T-10250	Inner polye cover, AC cord	1
	141-6-415T-33900	Notice, Swedish	1
	141-6-415T-33800	Notice, Dutch	1
ACCESSORIES			
	4-241T-11177 4-241T-10873	)or Cassette tape C-12	1
	4-243T-77900	Power cord	1
CABINET			
1	141-0-111T-34001	Cabinet Assy	1
2	141-9-124T-09600	Top lid Assy (141-0-124T-19321)	1
4	141-0-126T-22401	Back lid Assy	1
5	141-9-128T-03500	Battery lid Assy (141-0-128T-11900)	1
6	141-2-271T-14300	Bracket handle	2
7	141-0-171T-08700	Handle Assy (141-0-171T-13300)	1
8	141-2-385T-02201	Bracket MIC	2
9	141-2-742T-10500	Lever, Top lid	1
10	123-2-472R-11100	Lug, Rod ANT	3
11	141-2-163T-45500	Rotary kob, Tuning	1
12	141-2-163T-45600	Rotary knob, VR	1
13	141-2-163T-45700	Rotary knob, VR	1
14	141-9-163T-04100	Rotary knob Assy, Tone (141-0-163T-45801)	1
15	141-9-163T-04101	Rotary knob Assy, Band select (141-0-163T-45800)	1
16	141-2-385T-02600	Bracket	2
17	141-2-132T-03800	Sign window, Voltage select	1
18	141-2-163T-44500	Rotary knob, Fine Turning	1
CHASSIS			
20	141-2-367T-30500	Bracket socket	1
21	123-2-566R-12000	Tuning Shaft	1
22	141-2-742T-11600	Lever R/P select	1
23	141-2-361T-13600	Bracket resister, VR	1
24	123-2-363R-10400	Bracket capacitor, VC	1
25	141-2-425T-00200	Hexagon screw, VC	1
26	141-2-742T-11700	Lever, Band select	1
27	141-9-311T-05800	Chassis Assy	1
28	141-2-853T-49100	Spring plate, R/P select	1
29	141-2-363T-06700	Brucket, capacitor	1
30	141-2-538T-08100	Draum, VC	1
31	141-2-340T-00200	Rope	1
32	141-2-851T-06300	Spring coil, Rope	1
33	141-2-661T-24600	Pulley	1
34	141-2-567T-02100	Pulley shaft	1
35	141-2-511T-12700	Pointer	1
36	141-2-513T-03300	Carriage	1
37	141-2-146T-15405	Dial scale	1
38	141-2-566T-07100	Tuning shaft Assy	1
39	141-2-322T-43800	Shield plate	1
40	141-2-447T-00800	Cushion	3
41	141-2-464T-08700	Fixer	5
42	141-2-464T-20671	Fixer	3
43	141-2-464T-21100	Fixer	1
44	141-2-472T-01001	Lug	6
45	141-2-447T-65000	Cushion 10 x 30 x 2	1
SCREW MOUNTING			
101		Pad Hd tapping screw 2.3 x 6	1
102		Pan Hd tapping screw 2.3 x 8	4
103		Pan Hd tapping screw 3 x 8	1
104		Pan Hd tapping screw 3 x 20	3
105		Pan Hd tapping screw 3 x 25	2
106		Pan Hd tapping screw 3 x 45	7
107		Hexagon Nut 3mm	1
108		Hexagon Nut 9mm	1

Ref. No.	Part No.	Description	Q'ty
SCREW MOUNTING			
109		Washer 2.5 x 5 x 0.5	4
110		Washer 3 x 8 x 1	1
111		Washer 3 x 10 x 0.5	1
112		Washer 3 x 8 x 0.5	1
113	141-2-457T-23000	Special washer	1
114	141-2-453T-01700	Washer, Fiber 3 x 10 x 1	4
115		Pan Hd Screw w/spring washer 3 x 4	1
116		Pan Hd, tapping screw w/washer 3 x 6	1
117		Pan Hd, tapping screw w/washer 3 x 8	12
118		Pan Hd, tapping screw w/washer 3 x 12	9
119		Pan Hd, tapping screw 3 x 16	1
120		Pan Hd. screw 3 x 6	1
ELECTRICAL PARTS			
51	4-251T-81400	Power trans	1
52	4-511T-08088 4-511T-08091	)or Meter	1
53	4-151T-25400	Speaker 4cm 4 ohm	2
54	4-235T-51300	Socket 4P Mic	1
55	4-235T-26971	Socket, AC	1
56	141-2-135T-32271	Cover, CA socket	1
57	4-151T-25200	Speaker 12cm	2
58	4-153T-10400	Microphone	2
59	4-234T-04471	Fuse 1A	1
61	4-244T-03200	Telescopic rod ANT	1
62	4-235T-34600	Socket	8
65	4-235T-33200	Socket	1
66	4-236T-09901	Plug Assy	1
67	141-2-382T-03100	Terminal	3
AMP PCB ASSY			
50	141-4-230T-47076	P.C board Assy, AMP	1
	4-231T-70100	Switch, Mono/stereo	1
	4-231T-70000	Switch, TA-RA-TI	1
	4-231T-72100	Switch, R/P	1
	4-231T-75100	Switch, R/P) or	1
	4-231T-65200	Switch, Beat	1
	4-235T-51500	Socket, Headphone	1
	4-235T-37900	Socket, Mic	1
	4-235T-38000	Socket, Mic, Ext SP x 2	3
	4-235R-15700	Socket Remote	1
	4-235T-33300	Socket DIN 5P	1
	4-258T-07100	OSC Coil	1
L801,901	4-252T-01015	Low frequency choke	2
	4-236T-10271	Plug 4P Mic	1
	4-236T-10273	Plug, 6P head	1
	4-236T-10293	Plug, 2P motor	1
SVR801	4-222T-39580	Semifixed variable resistor	1
	141-2-162T-13600	Lever knob, Stereo/Mono, Radio ON/OFF	2
	123-2-411R-10900	Plate nut	1
	141-2-381T-04200	Bracket Fuse	2
IC801, 901		IC LA4112 SN	2
Q801,901, 803,903, 805,905		Transistor 2SC1740 S	6
Q804,904		Transistor 2SC1740 R	2
Q802,902		Transistor 2SC1740 S LN	2
Q701		Transistor 2SB187 RED	1
D703,704, 802,902, 803,903,		Diode 1S2473 or DS442	6
D804,904		Diode DS442 or DS2473	2
D702		Diode DS131 A or DS131B	1
D801,901		Diode 1S188 FM1 or 1N60F	2
D701		Diode DS132A or DS132B	1
		(CAPACITORS)	
C709		Ceramic 220PF 50V ±10%	1
C805,905, 807,907, 830,930, 718		Ceramic 100PF 50V ±10%	7

PARTS LIST

Ref. No.	Part No.	Description	Q'ty
AMP PCB ASSY			
C812,912		Ceramic 330PF 50V ±10%	2
C845,945, 707,708, 820,920, 844,944		Ceramic 470PF 50V ±10%	8
C942		Ceramic 560PF 50V ±10%	1
C835,935		Ceramic 680PF 50V ±10%	2
C825,925 816,916		Ceramic 0.001μF 50V ±10%	4
C831,931		Ceramic 0.0015μF 50V ±10%	2
C713,714, 717		Ceramic 0.01μF 50V +80 −20%	3
C703,704, 701,702		Ceramic 0.022μF 50V +80−20%	4
C720		Ceramic 0.047μF 50V +80 −20%	1
C946,710, 836,936, 837,937, 846		Mylar 0.001μF 50V ±20%	7
C803,903		Mylar 0.0022μF 50V ±20%	2
C809,909, 838,938		Mylar 0.01μF 50V ±20%	4
C711,808, 908		Mylar 0.022μF 50V ±20%	3
C833,933		Mylar 0.15μF 50V ±20%	2
C801,901		Mylar 0.033μF 50V ±20%	2
C802,902, 819,919		Al Electrolytic 0.1μF 10V +40 −20%	4
C806,906, 847,947		Al Electrolytic 0.22μF 10V +40 −20%	4
C810,910, 811,911, 818,918, 814,914, 815		Electrolytic 1μF 16V	9
C824,924, 804,904		Electrolytic 2.2μF 16V	4
C826,926		Electrolytic 4.7μF 16V	2
C827,927, 712		Electrolytic 22μF 10V	3
C716,839, 939		Electrolytic 100μF 10V	3
C720		Electrolytic 100μF 16V	1
C929,843, 714,817, 917,828, 928,829		Electrolytic 220μF 10V	8
C705		Electrolytic 220μF 16V	1
C834,934, C715		Electrolytic 1000μF 10V	2
C706		Electrolytic 1000μF 16V	1
C840,940		Electrolytic 2200μF 16V	1
		Electrolytic 4.7μF 25V (Nonpolar)	2
		(RESISTORS)	
R807,907		Carbon 15 ohm ±10% 1/4W	2
R706		Carbon 470 ohm ±10% 1/4W	1
R825,925, 708		Carbon 390 ohm ±10% 1/4W	3
R813		Carbon 1.5K ohm ±10% 1/4W	1
R832,932		Carbon 3.3K ohm ±10% 1/4W	2
R814,914, 809,909, 811,911		Carbon 4.7K ohm ±10% 1/4W	6
R810,910		Carbon 5.6K ohm ±10% 1/4W	2
R802,902, 805,905, 838,938		Carbon 6.8K ohm ±10% 1/4W	6
R808,908		Carbon 22K ohm ±10% 1/4W	2
R710		Carbon 68K ohm ±10% 1/4W	1
R839,939, 935		Carbon 100K ohm ±10% 1/4W	3
R804,904, 816,916		Carbon 220K ohm ±10% 1/4W	4
R806,906		Carbon 820K ohm ±10% 1/4W	2
R812,912		Carbon 1M ohm ±10% 1/4W	2
R801,901, 831,931		Carbon 3.9K ohm ±10% 1/4W	4

Ref. No.	Part No.	Description	Q'ty
AMP PCB ASSY			
R803,903		Carbon 2.2M ohm ±10% 1/4W	2
R705		Carbon 8.2 ohm ±10% 1/4W	1
R821,921		Carbon 56 ohm ±10% 1/4W	2
R716		Carbon 560 ohm ±10% 1/4W	1
R830,930 837,937		Carbon 100 ohm ±10% 1/4W	4
R829,929		Carbon 120 ohm ±10% 1/4W	2
R819,919		Carbon 270 ohm ±10% 1/4W	2
R818,918, 823,923		Carbon 1K ohm ±10% 1/4W	4
R701,702, 833		Carbon 2.2K ohm ±10% 1/4W	3
R704,828, 928		Carbon 6.8K ohm ±10% 1/4W	3
R703,715		Carbon 8.2K ohm ±10% 1/4W	2
R915,815		Carbon 68K ohm ±10% 1/4W	2
R817,917, 822,922		Carbon 560K ohm ±10% 1/4W	4
R711		Carbon 15 ohm ±10% 1/4W	1
TUNER PCB ASSY			
63	141-4-230T-48172	P.C. Bourd Assy, Tuner	1
L111A,B	4-257T-27301	ANT Coil Assy, LW/MW	1
L110	4-257T-10710	ANT Coil	1
L113	4-258T-05611	O.S.C Coil	1
L114	4-258T-05511	O.S.C Coil	1
L112	4-258T-21210	O.S.C Coil	1
VC1 ~ 4	4-224T-10400	Variable capacitor	1
VC5	4-224R-20700	Fine Tuning	1
CT1,2,3,4, 6,7	4-224R-11671	Trimmer	6
CT5,8	4-224T-07600	Trimmer	2
L101	4-265R-11600	VHF Coil	1
L102	4-265R-00600	VHF Coil	1
L103	4-265R-01200	VHF Coil	1
L106	4-265R-10500	VHF Coil	1
L105	4-265R-05000	VHF Coil	1
L104-1	4-265R-13400	VHF Coil	1
L104-2	4-265T-02100	VHF Coil	1
L108	4-253R-11160	RF Choke	1
L109	4-253T-05900	Filter	1
T301	4-256R-20810	I.F.T.	1
T302	4-256R-15110	I.F.T.	1
T303	4-256R-02310	I.F.T.	1
T304,305	4-256R-00110	I.F.T.	2
T306	4-256R-00210	I.F.T.	1
CF301	4-256T-80400	I.F. Filter	1 (or)
	4-256T-80471	I.F. Filter	
	4-256T-80472	I.F. Filter	
	4-256T-80473	I.F. Filter	
	4-256T-80474	I.F. Filter	
SW101 ~10	4-231T-69300	Switch	
B101	4-231T -69371	Switch	
C501,502	123-2-471R-10400	Core	1
R503	4-227T-01400	CR Pack	2 (or)
	4-227T-01410	CR Pack	
R516	4-222T-39475	Semifixed variable resistor 10K-B	1
	4-222T-39471	Semifixed variable resistor 500-B	1
	141-2-322T-40300	Shield Plate, FC301	1
	141-2-322T-18900	Sheild Plate, IFT	1
	141-2-322T-18100	Shield Plate	1
	4-222T-61100	Variable resistor, Volume	1
	4-222T-61200	Variable resistor, Tone	1
Q101		Transistor 2SC930 E R	1
Q102		Transistor 2SC930 D CONV	1
Q301		Transistor 2SC930 D IF	1
D301		Diode 1S188 or 1N60	1
D102		Diode 1S553	1
D304		Diode YZ047A	1
D305		Diode MV11 T	1
D101,103, 502,104, 105		Diode 1S2473	5
D302,303		Diode 1S188 FM1	2
IC501		IC HA11227	1
IC301		IC μPC1018C F	1

PARTS LIST

Ref. No.	Part No.	Description	Q'ty
TUNER PCB ASSY			
		CAPACITORS	
C307		Ceramic 1PF 50V ±0.25PF	1
C122,129		Ceramic 3PF 50V ±0.25PF	2
C116		Ceramic 8PF 50V ±0.5PF	1
C304		Ceramic 4PF 50V ±0.25PF	1
C108,139		Ceramic 5PF 50V ±0.5PF	2
C123		Ceramic 7PF 50V ±0.5PF	1
C109,121, 125		Ceramic 10PF 50V ±10%	3
C138		Ceramic 8PF 50V ±0.5PF	1
C115		Ceramic 6PF 50V ±0.5PF	1
C107		Ceramic 18PF 50V ±10%	1
C103		Ceramic 15PF 50V ±10%	1
C131		Ceramic 12PF 50V ±10%	1
C101		Ceramic 20PF 50V ±10%	1
C124		Ceramic 20PF 50V ±10%	1
C308		Ceramic 30PF 50V ±10%	1
C110		Ceramic 27PF 50V ±10%	1
C301,311		Ceramic 220PF 50V ±10%	2
C111		Ceramic 330PF 50V ±10%	1
C313		Ceramic 100PF 50V ±10%	1
C134		Ceramic 91PF 50V ±5%	1
C133		Ceramic 10PF 50V ±10%	1
C102		Ceramic 30PF 50V ±10%	1
C104		Ceramic 100PF 50V ±10%	1
C105,106		Ceramic 0.001μF 50V ±10%	2
C303		Ceramic 0.01μF 50V +80–20%	1
C113,114, 301		Ceramic 0.01μF 50V +80 –20%	3
C314,320		Ceramic 0.022μF 50V +80–20%	2
C328,333		Ceramic 0.022μF 50V +80–20%	2
C326,117		Ceramic 0.047μF 50V +80–20%	2
C331		Ceramic 0.022μF 50V +80–20%	1
C118		BC-CON 0.1μF 12V ±10%	1
C315		Ceramic 0.01μF 50V +80–20%	1
C112,120		Ceramic 0.047μF 50V +80–20%	2
C848,948		Ceramic 0.0022μF 50V ±10%	2
C306,332		Mylar 0.047μF 50V ±20%	2
C507,508		Mylar 0.015μF 50V ±20%	2
C322,323, 137		Mylar 0.01μF 50V ±20%	3
C502,821, 921		Mylar 0.047μF 50V ±20%	3
C136,309, 329		Mylar 0.022μF 50V ±20%	3
C305,302, 321		Mylar 0.022μF 50V ±20%	3
C316,128, 823,923		Mylar 0.0033μF 50V ±20%	4
C140,127		Mylar 0,0047μF 50V ±20%	2
C325		Mylar 0.01μF 50V ±20%	1
C334		Mylar 0.0047μF 50V ±20%	1
C327		Mylar 0.022μF 50V ±20%	1
C822,922		Mylar 0.068μF 50V ±20%	2
C511		Electrolytic 470μF 10V	1
C324		Electrolytic 470μF 6.3V	1
C319		Electrolytic 47μF 6.3V	1
C312		Electrolytic 4.7μF 6.3V	1
C317		Electrolytic 10μF 6.3V	1
C501		Electrolytic 2.2μF 10V	1
C504		AL Electrolytic 0.33μF 16V ±20%	1
C509,510		AL Electrolytic 0.1μF 10V +40–20%	2
C503		AL Electrolytic 1μF 10V ±20%	1
C505		AL Electrolytic 2.2μF 16V +40–20%	1
C512		Electrolytic 1μF 10V	1
C132		Stylol 200PF 50V ±5%	1
C130		Styrol 340PF 50V ±5%	1
C506		Styrol 470PF 50V ±5%	1

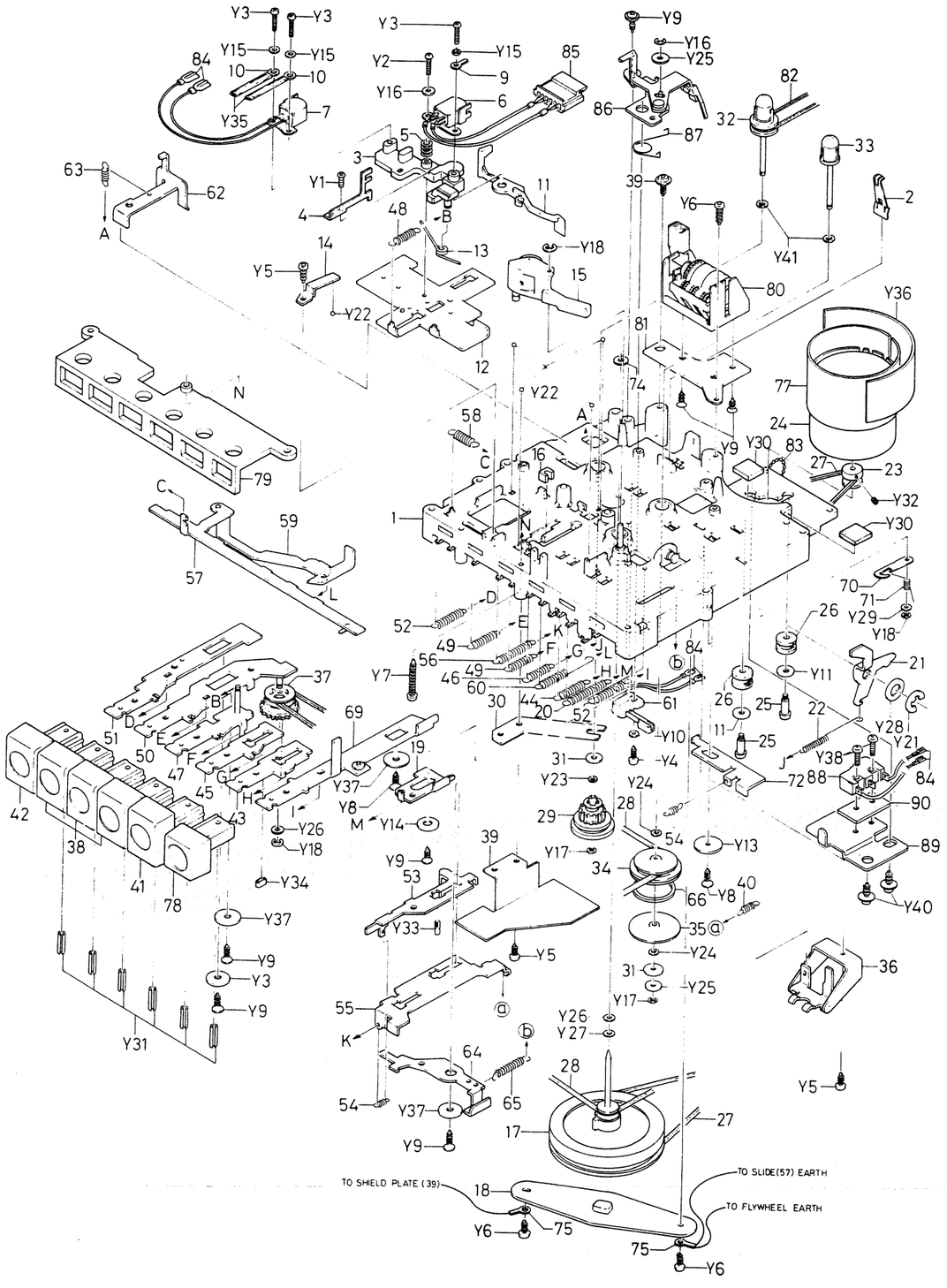
Ref. No.	Part No.	Description	Q'ty
TUNER PCB ASSY			
		RESISTORS	
R113		Carbon 270K ohm ±10% 1/4W	1
R318		Carbon 47K ohm ±10% 1/4W	1
R329, 112		Carbon 3.3K ohm ±10% 1/4W	2
R313,314, 323		Carbon 1K ohm ±10% 1/4W	3
R306		Carbon 560 ohm ±10% 1/4W	1
R303,307, 308		Carbon 220 ohm ±10% 1/4W	3
R304		Carbon 150 ohm ±10% 1/4W	1
R116		Carbon 68 ohm ±10% 1/4W	1
R518		Carbon 47 ohm ±10% 1/4W	1
R311		Carbon 270 ohm ±10% 1/4W	1
R321		Carbon 33K ohm ±10% 1/4W	1
R310		Carbon 390 ohm ±10% 1/4W	1
R114		Carbon 10K ohm ±10% 1/4W	
R115		Carbon 47 ohm ±10% 1/4W	1
R515		Carbon 15K ohm ±10% 1/4W	1
R505,506		Carbon 3.3K ohm ±10% 1/4W	2
R107		Carbon 680 ohm ±10% 1/4W	1
R312		Carbon 560 ohm ±10% 1/4W	1
R325		Carbon 120 ohm ±10% 1/4W	1
R327		Carbon 1M ohm ±10% 1/4W	1
R110,326, 517		Carbon 100K ohm ±10% 1/4W	3
R102,105, 309,319, 824,924		Carbon 15K ohm ±10% 1/4W	6
R302,504		Carbon 18K ohm ±10% 1/4W	2
R328		Carbon 1K ohm ±10% 1/4W	1
R315,316, 317		Carbon 5.6K ohm ±10% 1/4W	3
R509,507		Carbon 5.6K ohm ±10% 1/4W	2
R324,508, 510,836, 936		Carbon 2.2K ohm ±10% 1/4W	5
R501,513		Carbon 1K ohm ±10% 1/4W	2
R305		Carbon 220 ohm ±10% 1/4W	1
R101,104		Carbon 470 ohm ±10% 1/4W	2
R512		Carbon 390 ohm ±10% 1/4W	1
R301		Carbon 330 ohm ±10% 1/4W	1
R108		Carbon 100 ohm ±10% 1/4W	1
R109,118, 331,111		Carbon 56 ohm ±10% 1/4W	4
R103		Carbon 33 ohm ±10% 1/4W	1
R511,322		Carbon 47 ohm ±10% 1/4W	2
R117		Carbon 68 ohm ±10% 1/4W	1
LED PCB ASSY			
64	141-4-230T-48272	P.C. Board Assy, LED	1
D501		LED SLP 224B Red	1
	141-2-352T-21500	Spacer	1

PARTS LIST

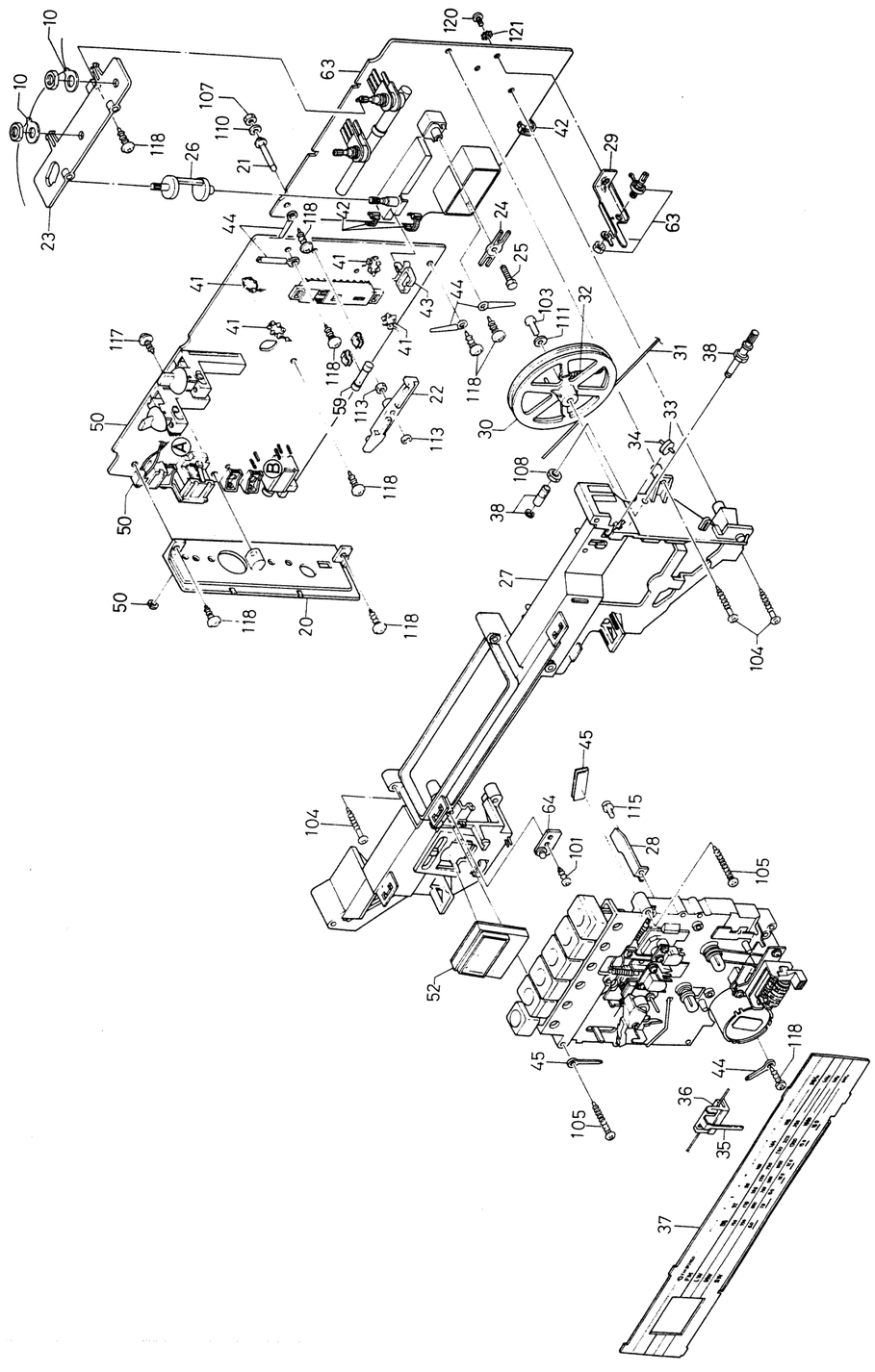
Ref. No.	Part No.	Description	Q'ty
MECHANISM			
1	141-0-311T-23491	Chassis Assy	1
2	141-2-853T-46900	Spring Plate, Cassette Plase	1
3	141-2-375T-06900	Bracket Head	1
4	141-2-821T-10700	Tape Guide	1
5	141-2-851T-82700	Spring Coil R/P Head	1
6	4-242T-21671	Head R/P	1
7	4-242T-19500	Head E	1
9	123-2-472R-00200	Lug	1
10	141-2-472T-02200	Lug	2
11	141-2-721T-03900	Lever Shaft-Off	1
12	141-2-731T-37500	Slide, Head Base	1
13	141-2-852T-35300	Spring Wire, Pinch Roller	1
14	141-2-853T-53200	Spring Plate, Head Slide	1
15	141-0-545T-02900	Lever Assy, Pinch Roller	1
16	141-2-461T-28400	Pipe	1
17	141-0-521T-06500	Flywheel Assy	1
18	141-0-524T-02900	Bracket Flywheel Assy	1
19	141-2-742T-08202	Lever	1
20	141-2-851T-80100	Spring Coil (T012)	1
21	141-2-741T-96400	Lever, Cassette Up	1
22	141-2-855T-10800	Spring Coil	1
23	141-2-661T-65701 141-2-661T-65702 141-2-661T-65704 141-2-661T-65705 141-2-661T-65706	Pulley Pulley Pulley Pulley Pulley (or)	1
24	4-527T-08371	Motor	1
25	141-2-421T-12501	Special Screw	2
26	141-2-445T-07000	Rubber Cushion, Motor	2
27	141-2-564T-15401	Square Belt, Main	1
28	141-2-564T-16500	Belt	1
29	141-0-661T-02400	Pulley Assy, Supply	1
30	141-2-853T-48000	Spring Plate	1
31	141-2-457T-06200	Special Washer	2
32	141-0-531T-11300	Reel Plate Assy, Supply	1
33	141-0-531T-11200	Reel Plate Assy, Tackup	1
34	141-2-661T-22900	Pulley, Tackup	1
35	141-2-661T-23001	Pulley, Tackup	1
36	141-0-741T-22100	Lever Assy	1
37	141-2-661T-22600	Pulley, REW	1
38	141-2-161T-47100	Push Button, FWD, REW, PLAY	3
39	141-2-322T-34400	Shield Plate	1
40	141-2-855T-01900 141-2-851T-96200 141-2-851T-12400	Spring Coil Spring Coil Spring Coil (or)	1
41	141-9-161T-03000	Push Button Assy, Stop	1
42	141-9-161T-03001	Push Button Assy, Rec	1
43	141-2-731T-43301	Slide, Stop	1
44	141-2-851T-73500	Spring Coil (T-433)	1
45	141-2-731T-43401	Slide, FWD	1
46	141-2-851T-93000	Spring Coil (T-434)	1
47	141-0-731T-13700	Slide Assy, PLAY	1
48	141-2-851T-91300	Spring Coil	1
49	141-2-851T-96400	Spring Coil	2
50	141-0-731T-13800	Slide Assy, REW	1
51	141-2-731T-43701	Slide, REC	1
52	141-2-851T-93000	Spring Coil	2
53	141-2-731T-43101	Slide, Brake	1
54	141-2-855T-00200	Spring Coil	2
55	141-2-731T-51101	Slide, PLAY	1
56	141-2-855T-00601	Spring Coil (T-511)	1
57	141-0-731T-14000	Slide Assy	1
58	141-2-851T-73800	Spring Coil (T-478)	1
59	141-2-741T-78400	Lever, Auto-Stop	1
60	141-2-851T-91200	Spring Coil	1
61	4-231T-61600 4-231T-59700	Switch, Power Switch Power (or)	1
62	141-2-741T-61000	Lever	1
63	141-2-851T-87701	Spring Coil (T-610)	1
64	141-2-742T-08100	Lever, Stop/Play	1
65	141-2-851T-56100	Spring Coil (T-911)	1
66	141-2-452T-02300	Felt	1
69	141-0-731T-14100	Slide Assy, PAUSE	1
70	141-2-614T-05200	Lever Lock, PAUSE	1
71	141-2-852T-37900	Spring Wire, (T-052)	1
72	141-2-742T-01400	Lever, PAUSE	1
74	141-2-457T-04300	Special Washer	1
75	123-2-472R-00400	Lug	3
77	141-2-322T-27100	Shield Plate	1

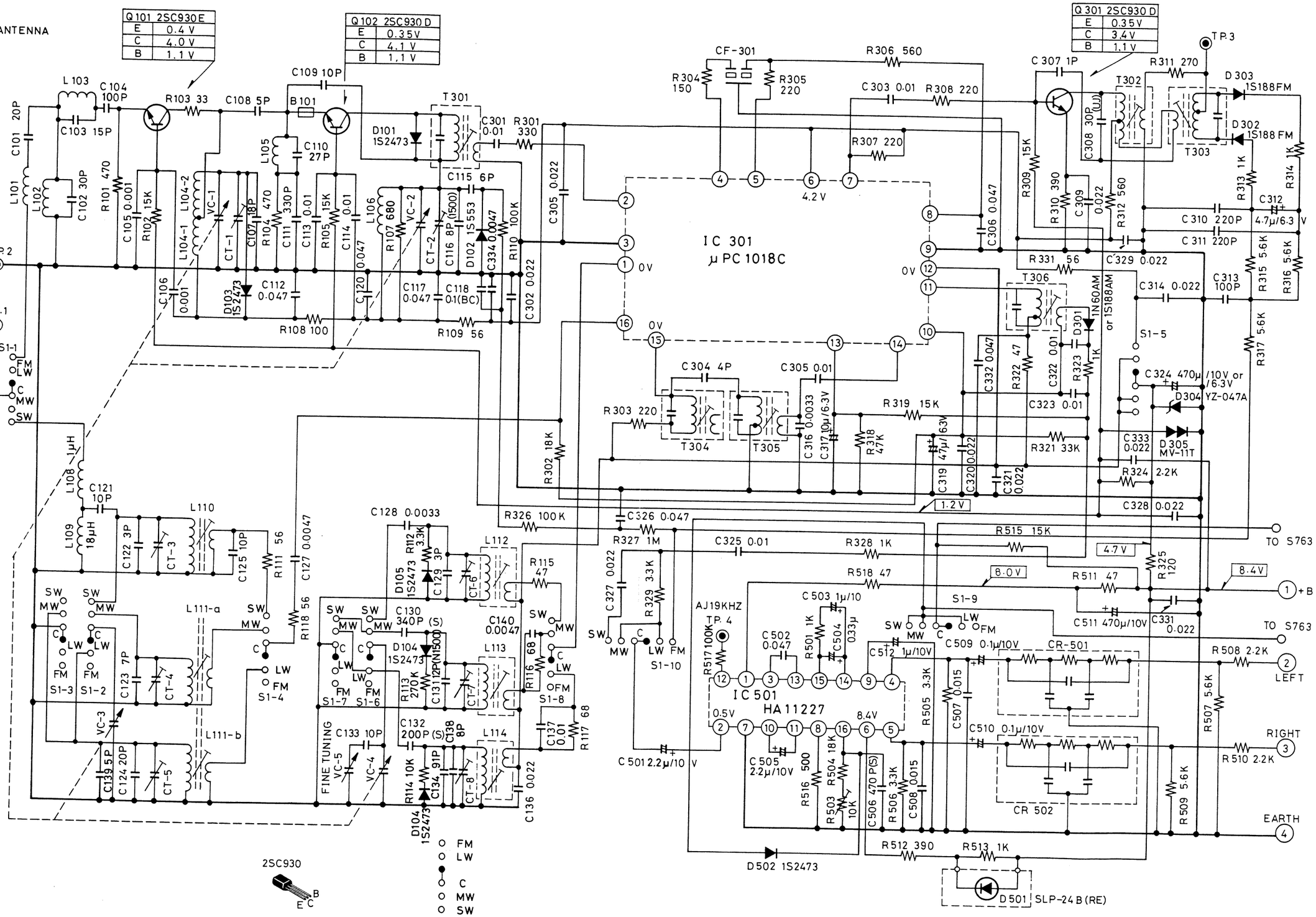
Ref. No.	Part No.	Description	Q'ty
MECHANISM			
78	141-2-161T-47400	Push Button, PAUSE	1
79	141-2-351T-42800	Bracket Mtg.	1
80	141-2-811T-05400	Counter	1
81	141-2-812T-06300	Bracket Counter	1
82	141-2-564T-16900	Square Belt	1
83	141-2-464T-08700	Fixer	2
84	4-235T-34600	Socket Head x 2, SW x 2	6
85	4-235T-51400	Socket R/P Head Lead	1
86	141-0-742T-12800	Lever Assy	1
87	141-2-852T-46100	Spring wire	1
88	4-231T-59500	Switch	1
89	141-2-365T-38700	Bracket switch	1
70	141-2-327T-07600	Insulator	1
Y1		Pan Hd screw 2 x 2	1
Y2		Pan Hd screw W/Washer 2 x 12	1
Y3		Pan Hd screw 2 x 12	3
Y4		Pan Hd tapping screw 2.3 x 8	1
Y5		Pan Hd tapping screw 3 x 6	3
Y6		Pan Hd tapping screw 3 x 8	3
Y7		Pan Hd tapping screw 3 x 20	1
Y8		Flat Hd tapping screw 3 x 6	2
Y9		Flat Hd tapping screw 3 x 8	7
Y10		Washer 2.5 x 5 x 0.5	1
Y11		Washer 3 x 8 x 0.5	2
Y13		Flat Hd wood screw 3 x 12	2
Y14		Washer 4 x 10 x 0.8	1
Y15		Spring washer	3
Y16	141-2-457T-23800	Special washer	1
Y17	141-2-457T-23700	Special washer	2
Y18	141-2-457T-23000	Special washer	3
Y21	141-2-457T-23200	Special washer	1
Y22	141-2-345T-00400	Steel ball	5
Y23	141-2-457T-11000	Special washer	1
Y24	141-2-453T-30101	Washer 2.1 x 4 x 0.5	2
Y25	141-2-453T-31200	Washer 2 x 8.5 x 0.25	2
Y26	141-2-453T-30201	Washer 2.5 x 5 x 0.25	2
Y27	141-2-453T-30202	Washer 2.6 x 4.7 x 0.5	1
Y28	141-2-453T-30802	Washer 6.2 x 9.5 x 0.5	1
Y29	141-2-453T-00800	Washer 3 x 8 x 0.5	1
Y30	141-2-447T-36000	Cushion	2
Y31	141-2-488T-01801	Pin 1.5 x 8 x 0.3	6
Y32		Head less screw 2 x 4	1
Y33	141-2-490T-05000	Tube	6
Y34	141-2-490T-08301	Tube	3
Y35	141-2-490T-00600	Tube	5
Y36	141-2-184T-01900	Tape	1
Y37		Washer 3 x 12 x 12	3
Y38		Pan Hd screw 2.3 x 10	2
Y39		Pan Hd tapping screw w/washer 3 x 8	1
Y40		Pan Hd tapping screw w/washer 3 x 6	2
Y41	141-2-453T-30102	Washer 2.1 x 4 x 0.5	2

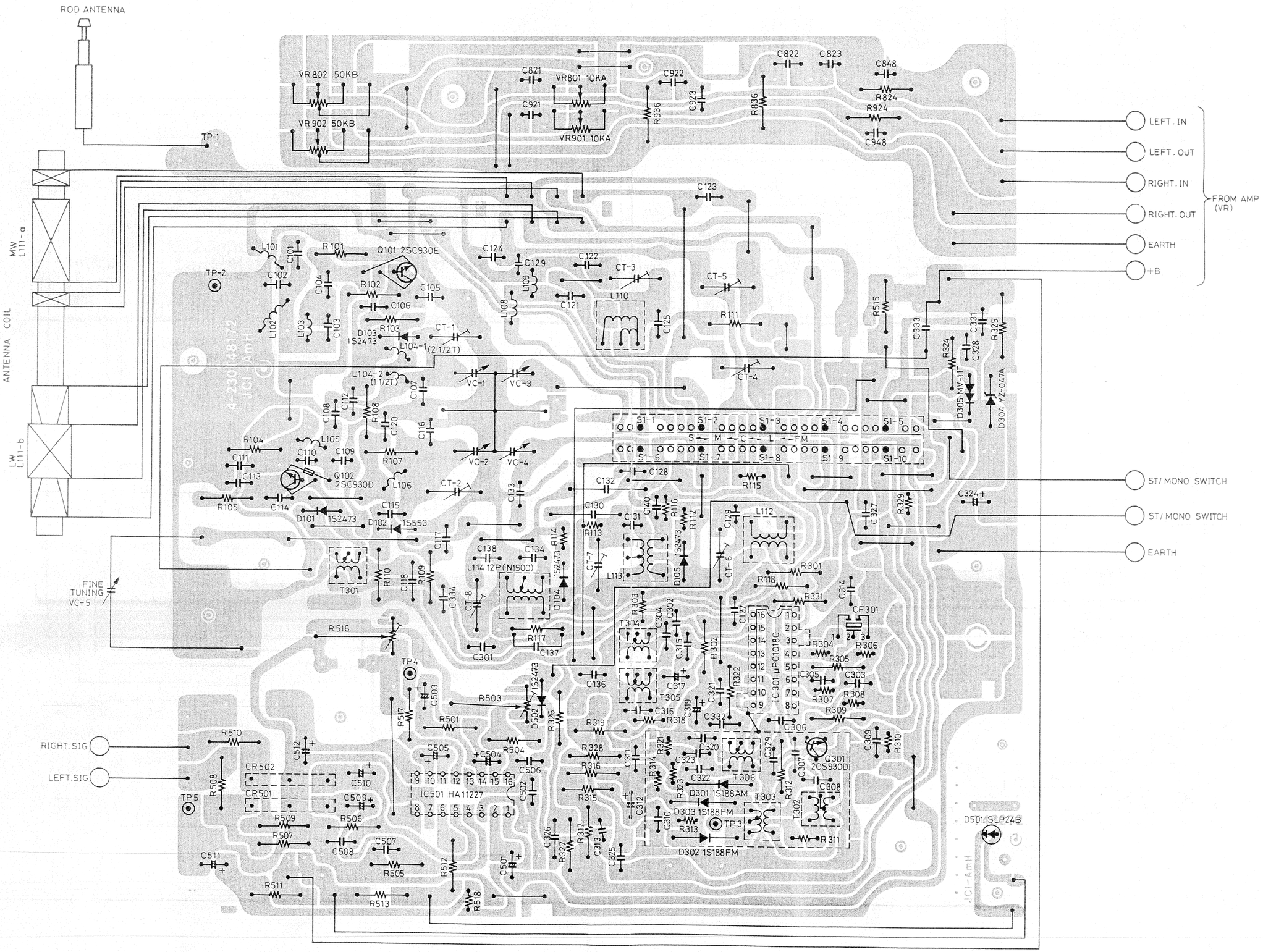
EXPLODED VIEW (MECHANISM)

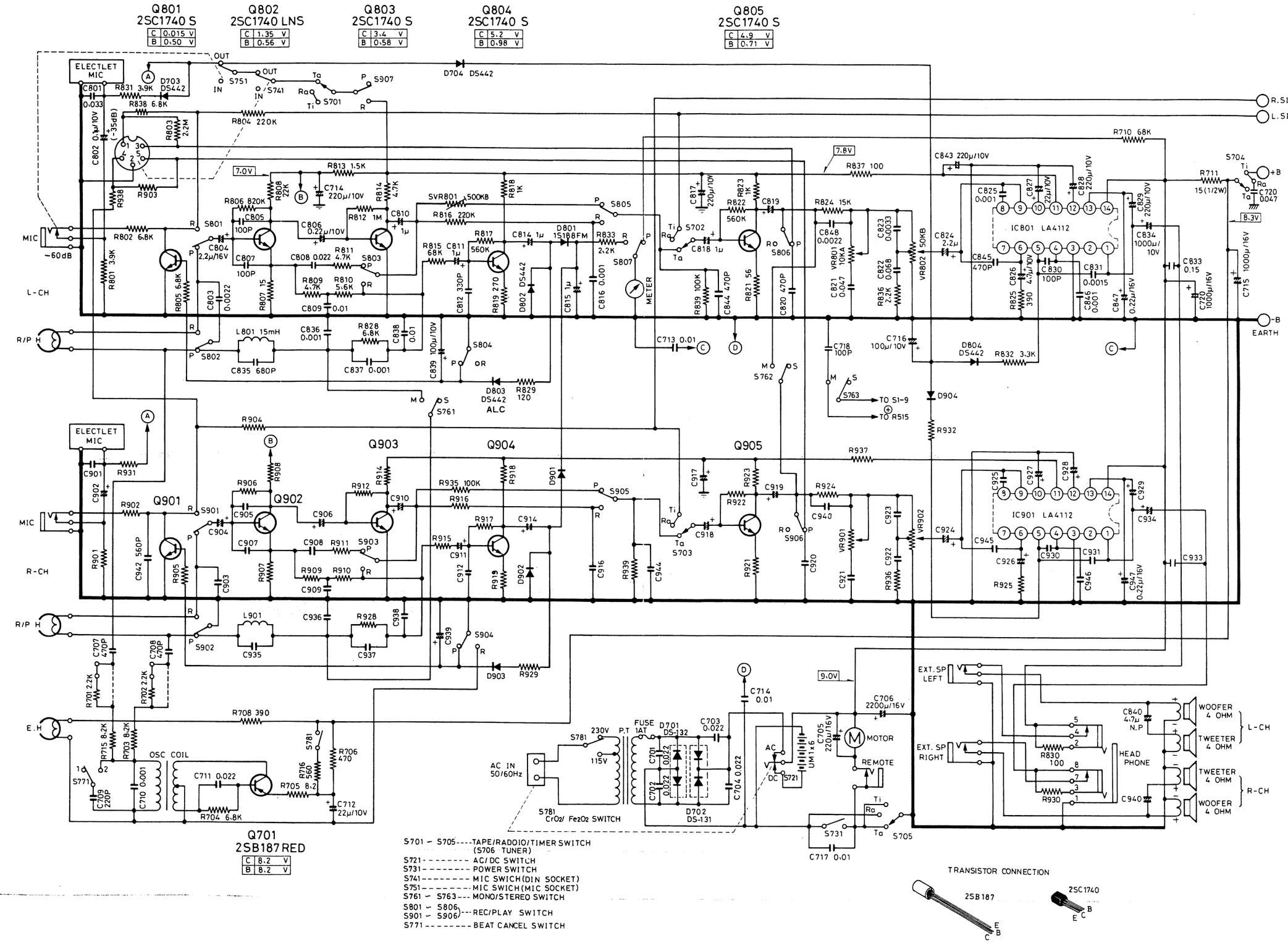


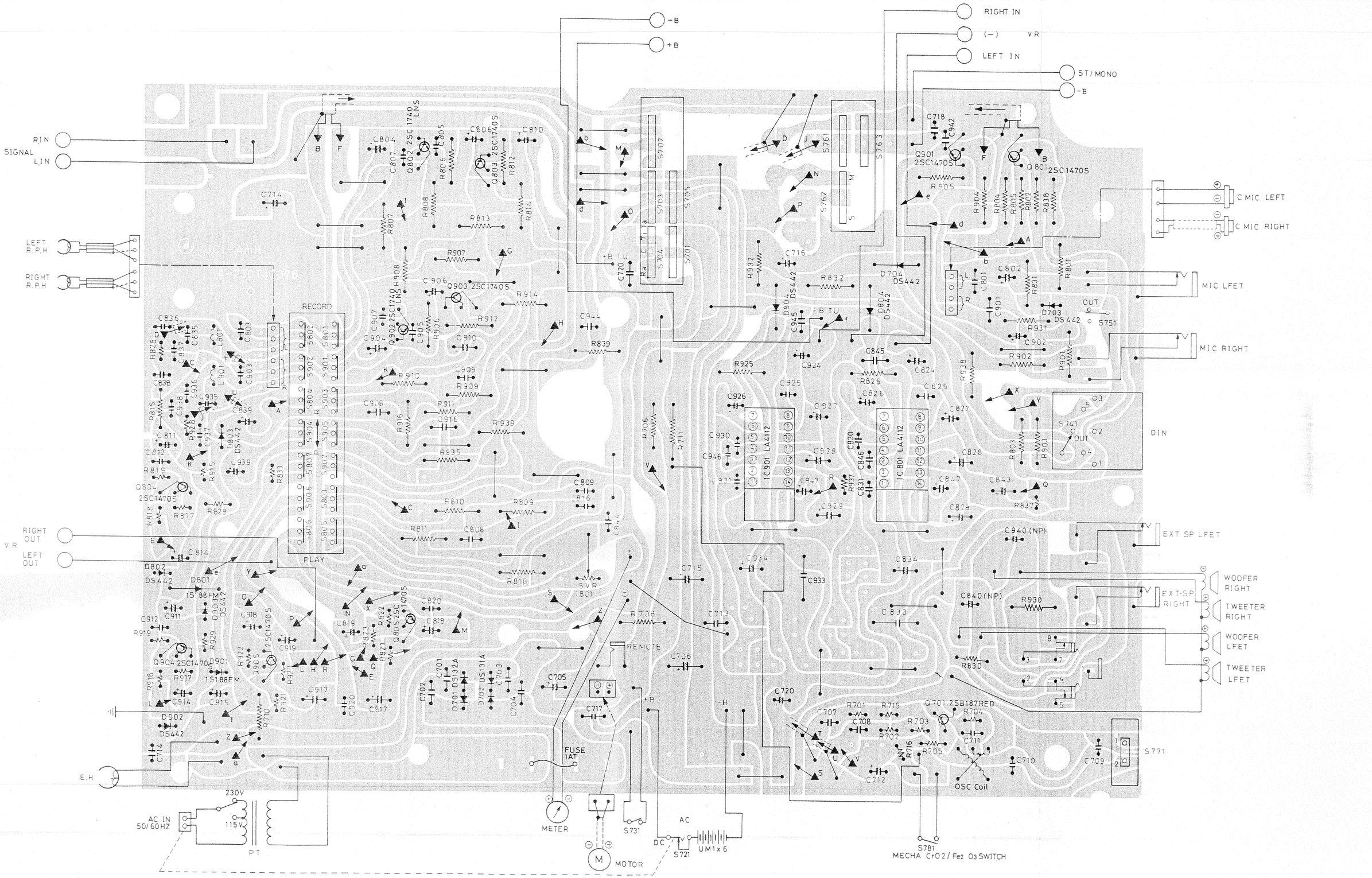
EXPLODED VIEW (CHASSIS)




Q101 2SC930E
E 0.4 V
C 4.0 V
B 1.1 V
Q102 2SC930 D
E 0.35V
C 4.1 V
B 1.1 V
Q 301 2SC930 D
E 0.35 V
C 3.4 V
B 1.1 V
ROD ANTENNA
TP.1
TP.2
TP.3
L 103
C 104 100P
C103 15P
C101 20P
L101
L102
C102 30P
R101 470
C 105 0.001
R102 15K
R103 33
C108 5P
C109 10P
B101
T301
D101 1S2473
C301 0.01
R301 330
L105
C110 27P
C115 6P
L104-1
L104-2
VC-1
CT-1
C107 18P
R104 470
C111 330P
C113 0.01
R105 15K
C114 0.01
L106
R107 680
VC-2
CT-2
C116 8P (1500)
D102 1S553
C334 0.0047
R110 100K
C305 0.022
C106 0.001
D103 1S2473
C112 0.047
C120 0.047
C117 0.047
C118 0.1(BC)
C302 0.022
R108 100
R109 56
S1-1
FM
LW
C
MW
SW
L108 1μH
C121 10P
L109 18μH
C122 3P
CT-3
L110
C125 10P
R111 56
C127 0.0047
R118 56
L111-a
L111-b
C123 7P
CT-4
VC-3
C139 5P
C124 20P
CT-5
S1-3
S1-2
S1-4
C128 0.0033
D105 1S2473
R112 3.3K
C129 3P
CT-6
L112
R115 47
C130 340P (S)
D104 1S2473
C131 12P(N1500)
L113
CT-7
R113 270K
R116 68
C140 0.0047
S1-7
S1-6
S1-8
FINE TUNING
C133 10P
VC-5
VC-4
C132 200P (S)
C138 8P
L114
R114 10K
C134 91P
CT-8
C136 0.022
C137 0.01
R117 68
S1-5
S1-9
S1-10
2SC930
B
E
C
FM
LW
C
MW
SW
BAND SW S1-1~S1-10
CF-301
R304 150
R305 220
R306 560
C303 0.01
R308 220
R307 220
IC 301
μPC 1018C
4.2 V
0V
C304 4P
C305 0.01
R303 220
T304
T305
C316 0.0033
C317 10μ/6.3V
R318 47K
R319 15K
R302 18K
C319 47μ/63V
C320 0.022
C321 0.022
R321 33K
1.2 V
R326 100K
C326 0.047
R327 1M
C327 0.022
R329 3.3K
C325 0.01
R328 1K
R515 15K
4.7 V
R518 47
8.0 V
R511 47
C511 470μ/10V
C331 0.022
8.4V
TO S763
+B
AJ19KHZ
TP. 4
R517 100K
C 501 2.2μ/10 V
C 502 0.047
R501 1K
C504 0.33μ
C 503 1μ/10
C512 1μ/10V
IC 501
HA11227
0.5V
8.4V
C 505 2.2μ/10V
R516 500
R504 18K
R503 10K
C506 470 P(S)
R505 3.3K
R506 3.3K
C507 0.015
C508 0.015
C509 0.1μ/10V
CR-501
C510 0.1μ/10V
CR 502
R507 5.6K
R509 5.6K
R508 2.2K
LEFT
RIGHT
R510 2.2K
EARTH
D502 1S2473
R512 390
R513 1K
D501 SLP-24 B (RE)
T306
D301 1N60AM or 1S188AM
R322 47
C322 0.01
R323 1K
C323 0.01
C324 470μ /10V or /6.3V
D304 YZ-047A
C333 0.022
D305 MV-11T
R324 2.2K
C328 0.022
T302
T303
D303 1S188FM
D302 1S188 FM
C308 30P (UJ)
R309 15K
R310 390
C309 0.022
R312 560
R311 270
C 307 1P
R313 1K
R314 1K
C312 4.7μ/6.3 V
C 310 220P
C 311 220P
R331 56
C329 0.022
C314 0.022
C313 100P
R315 5.6K
R316 5.6K
R317 5.6K
C306 0.047


ROD ANTENNA
TP-1
ANTENNA COIL
MW L111-a
LW L111-b
FINE TUNING VC-5
VR802 50KB
VR902 50KB
VR801 10KA
VR901 10KA
C821
C921
C922
C923
R936
R836
C822
C823
C848
R824
R924
C948
LEFT. IN
LEFT. OUT
RIGHT. IN
RIGHT. OUT
EARTH
+B
FROM AMP (VR)
C123
TP-2
L101
C101
R101
Q101 2SC930E
C124
C129
C122
CT-3
L109
L108
C121
L110
C125
CT-5
R111
R515
C333
R324
C328
C331
R325
D305 MV-11T
D304 YZ-047A
CT-4
L104-1 (2 1/2T)
L104-2 (1 1/2T)
VC-1
VC-3
VC-2
VC-4
CT-1
CT-2
S1-1
S1-2
S1-3
S1-4
S1-5
S — M — C — L — FM
S1-6
S1-7
S1-8
S1-9
S1-10
ST/ MONO SWITCH
ST/ MONO SWITCH
EARTH
C128
C132
R115
C130
R113
C31
C140
R116
R112
C139
L112
C324+
C327
R329
R114
D105 1S2473
CT-6
CT-7
L113
L114 12P (N1500)
C138
C134
T301
R10
C118
R109
C334
C117
CT-8
C301
R516
R117
C137
R301
R118
R331
C314
CF301
R303
T304
C304
C302
C315
R302
C127
IC-301 μPC1018C
R304
R305
R306
C305
C303
R307
R308
C316
R318
C319
C321
R322
C332
R309
C306
C309
R310
TP4
C503
R517
R503
D502 1S2473
R325
C136
T305
R319
R328
R316
R315
C311
C312
C505
C504
C506
C502
IC501 HA11227
R504
R501
RIGHT. SIG
LEFT. SIG
R510
C512
R508
CR502
CR501
TP5
C510
C509
R509
R506
R507
C508
C507
R505
C511
R511
R513
R512
R518
C501
C326
R327
R317
C313
C325
R321
R314
C320
C323
C322
T306
C329
C307
R312
Q301 2CS930D
C308
D301 1S188AM
D303 1S188FM
R313
TP3
T303
T302
R311
D302 1S188FM
D501 SLP24B
JCI-AmH
4-230 481-72
JCI AmH
R104
C111
C113
R105
C110
C109
R107
C114
Q102 2SC930D
L105
L106
D101 1S2473
D102 1S553
C115
C108
C112
R108
C120
C116
C107


Q801 2SC1740 S
C 0.015 V
B 0.50 V
Q802 2SC1740 LNS
C 1.35 V
B 0.56 V
Q803 2SC1740 S
C 3.4 V
B 0.58 V
Q804 2SC1740 S
C 5.2 V
B 0.98 V
Q805 2SC1740 S
C 4.9 V
B 0.71 V
ELECTLET MIC
MIC
L-CH
R-CH
R/P H
E.H
-60dB
OUT
IN
S751
S741
S701
S907
D704 DS442
R.SIGNAL
L.SIGNAL
7.0V
7.8V
8.3V
9.0V
R813 1.5K
R804 220K
R710 68K
R837 100
R711 15(1/2W)
S704
C720 0.047
IC801 LA4112
IC901 LA4112
SVR801 500KB
SVR901 10KA
VR802 50KB
VR902
S801
S802
S803
S804
S805
S806
S807
S901
S902
S903
S904
S905
S906
S702
S703
S761
S762
S763
METER
TO S1-9
TO R515
D803 DS442 ALC
D804 DS442
D904
R932
L801 15mH
C835 680P
L901
C935
C836 0.001
C837 0.001
C838 0.01
C839 100µ/10V
C840 4.7µ N.P
C713 0.01
C714 0.01
C716 100µ/10V
C717 0.01
C718 100P
R832 3.3K
R833 2.2K
R834 1K
R835 100K
R836 2.2K
R837 100
R838 6.8K
R839 100K
R840 100
R930
C930
C931
C933
C934
C940
C945
C946
C947 0.22µ/16V
R925
C926
Q701 2SB187RED
C 8.2 V
B 8.2 V
Q901
Q902
Q903
Q904
Q905
R901 3.9K
R902
R903 2.2M
R904
R905 6.8K
R906 820K
R907 15
R908 22K
R909 4.7K
R910 5.6K
R911 4.7K
R912 1M
R913 1.5K
R914 4.7K
R915 68K
R916 220K
R917 560K
R918 1K
R919 270
R920 470P
R921 56
R922 560K
R923 1K
R924 15K
R927 3.9K
R928 6.8K
R929 120
R931 3.9K
R938
R939 100K
R940 0.0022
R941 2.2K
R942 560P
C801 0.033
C802 0.1µ/10V
C803 0.0022
C804 2.2µ/16V
C805 100P
C806 0.22µ/10V
C807 100P
C808 0.022
C809 0.01
C810 1µ
C811 1µ
C812 330P
C813 1µ
C814 1µ
C815 1µ
C816 0.001
C817 220µ/10V
C818 1µ
C819
C820 470P
C821 0.047
C822 0.068
C823 0.0033
C824 2.2µ
C825 0.001
C826
C827
C828 220µ/10V
C829 220µ/10V
C830 100P
C831 0.0015
C832 0.22µ/16V
C833 0.15
C834 1000µ/10V
C835
C836
C837
C838
C839
C840
C841
C842
C843 220µ/10V
C844 470P
C845 470P
C846 0.001
C847 0.22µ/16V
C848 0.0022
C901 0.033
C902 0.1µ/10V
C903
C904 2.2µ/16V
C905 100P
C906 0.22µ/10V
C907 100P
C908 0.022
C909 0.01
C910 1µ
C911 1µ
C912 330P
C913 1µ
C914 1µ
C915 1µ
C916 0.001
C917 220µ/10V
C918 1µ
C919
C920 470P
C921 0.047
C922 0.068
C923 0.0033
C924 2.2µ
C925 0.001
C926
C927
C928 220µ/10V
C929 220µ/10V
C930 100P
C931 0.0015
C932 0.22µ/16V
C933 0.15
C934 1000µ/10V
C935
C936
C937
C938
C939
C940
C941
C942 560P
C943
C944
C945 470P
C946 0.001
C947 0.22µ/16V
R925
C926
D701 DS-132
D702 DS-131
D801 1S188FM
D802 DS442
D803 DS442
D804 DS442
D901
D902
D903
D904
R932
R933 2.2K
R934 2.2K
R935 100K
R936 2.2K
R937
R938
R939 100K
R940
R941 2.2K
R942 560P
R943
R944
R945
R946


-B
+B
RIGHT IN
(-) VR
LEFT IN
ST/MONO
-B
R IN
SIGNAL
L IN
LEFT R.P.H
RIGHT R.P.H
RECORD
PLAY
C MIC LEFT
C MIC RIGHT
MIC LFET
MIC RIGHT
DIN
EXT SP LFET
WOOFER RIGHT
TWEETER RIGHT
EXT SP RIGHT
WOOFER LFET
TWEETER LFET
RIGHT OUT
V.R
LEFT OUT
E.H
230V
115V
AC IN 50/60HZ
PT
FUSE 1AT
METER
S731
M MOTOR
AC
DC
S721
UM1x6
REMOTE
SVR 801
OSC Coil
S781
MECHA CrO2/Fe2 O3 SWITCH
S771
IC901 LA4112
IC 801 LA4112
Q901 2SC1470S
Q 801 2SC1470S
Q701 2SB187RED
Q802 2SC1740 LNS
Q803 2SC1740S
Q903 2SC1740S
Q902 2SC1740 LNS
Q804 2SC1470S
Q904 2SC1470
Q805 2SC
1470S
D702 DS131A
D701 DS132A
D902 DS442
D802 DS442
D801 1S188FM
D901 1S188FM
D703 DS442
D804 DS442
D904 DS442
D803 DS442